

#5

SEQUENCE LISTING

<110> Rafalski, J. Antoni
Cahoon, Rebecca E.
Coughlan, Sean
Miao, Guo-Hua

<120> PLANT VITAMIN E BIOSYNTHETIC ENZYMES

<130> BB-1289

<140> 09/857,613

<141> 2002-01-14

<150> PCT/US99/28588

<151> 1999-12-02

<150> 60/110,781

<151> 1998-12-03

<160> 43

<170> Microsoft Office 97

<210> 1

<211> 792

<212> DNA

<213> Zea mays

<220>

<221> unsure

<222> (586)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (718)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (762)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (773)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (782)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (790)

<223> n= a, c, g, or t

<400> 1

gttgagccct gttcaagccg agagaggaaa tgctctcgct gcagcgcagg gggtgtcgga 60

```

tcagggttact ctgcaagttg ctgatgctct ggagcaaccg tttcctgacg ggagttcga 120
tctggtgtgg tccatggaga gtggcgagca catgccggac aagagaaagt ttgttagtga 180
gctagcacgc gtggcggtc ctggaggac aataatcatc gtgacatggt gccataggaa 240
cctggatcca tccgaaacct cgctaaagcc cgatgaactg agcctcctga ggaggatatg 300
cgacgcgtac tacctcccg actggtgctc accttcagac tatgtgaaca ttgccaagtc 360
actgtctctc gaggatatca agacagctga ctggtcggag aacgtggccc cgttttgccc 420
cgccgtgata aaatcagcgc taacatggaa gggcttcacc tctctgctga cgaccggatg 480
gaagacgata agaggcgga tggatgagc gctaatagac cagggtctaca agaaggggct 540
catcaaattc accatcatca cctgtcgcaa gcctggagcc gcgtangagg aggcaaggag 600
cacaagttac tagcacagca caggatgcaa gtgcatatgt agatcatggc acatcgccgt 660
cactcatcat actgcacaaa atcaaattctc caggacattt aataattctg cacctcanat 720
attcaggggg gccggtacca atcgccatat gatctatacc gnccacggcg tcnttaacte 780
tnacggaaan ct 792

```

<210> 2
 <211> 191
 <212> PRT
 <213> Zea mays

<400> 2
 Leu Ser Pro Val Gln Ala Glu Arg Gly Asn Ala Leu Ala Ala Ala Gln
 1 5 10 15
 Gly Leu Ser Asp Gln Val Thr Leu Gln Val Ala Asp Ala Leu Glu Gln
 20 25 30
 Pro Phe Pro Asp Gly Gln Phe Asp Leu Val Trp Ser Met Glu Ser Gly
 35 40 45
 Glu His Met Pro Asp Lys Arg Lys Phe Val Ser Glu Leu Ala Arg Val
 50 55 60
 Ala Ala Pro Gly Gly Thr Ile Ile Ile Val Thr Trp Cys His Arg Asn
 65 70 75 80
 Leu Asp Pro Ser Glu Thr Ser Leu Lys Pro Asp Glu Leu Ser Leu Leu
 85 90 95
 Arg Arg Ile Cys Asp Ala Tyr Tyr Leu Pro Asp Trp Cys Ser Pro Ser
 100 105 110
 Asp Tyr Val Asn Ile Ala Lys Ser Leu Ser Leu Glu Asp Ile Lys Thr
 115 120 125
 Ala Asp Trp Ser Glu Asn Val Ala Pro Phe Trp Pro Ala Val Ile Lys
 130 135 140
 Ser Ala Leu Thr Trp Lys Gly Phe Thr Ser Leu Leu Thr Thr Gly Trp
 145 150 155 160
 Lys Thr Ile Arg Gly Ala Met Val Met Pro Leu Met Ile Gln Gly Tyr
 165 170 175
 Lys Lys Gly Leu Ile Lys Phe Thr Ile Ile Thr Cys Arg Lys Pro
 180 185 190

<210> 3
 <211> 521
 <212> DNA
 <213> Oryza sativa

<220>
<221> unsure
<222> (269)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (274)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (286)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (302)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (330)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (381) (382)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (387)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (398)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (418)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (429)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (436)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (462)
<223> n= a, c, g, or t

<220>

<221> unsure
 <222> (467)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (473)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (514)
 <223> n= a, c, g, or t

<400> 3
 cttacagaca aacggcagtt tgtaagcgag ctggcacgag tcgcagctcc tggggcgaga 60
 ataatcattg tgacctggtg ccataggaac ctcgagccat ccgaagagtc cctgaaacct 120
 gatgagctga atctcctgaa aaggatatgc gatgcatatt atctcccaga ctggtgctct 180
 ccttctgatt atgtcaaaat tgccgagtca ctgtctcttg aggatataag gacagctgat 240
 tggtaagag aacgtcgccc caatccggnc tgcnggttat taaatnaagc aattgacatg 300
 gnaagggtta actttctcct ggctaagaan tgggtgggaa gacgattaag aaggtggaat 360
 gggatgatgcc tccgatgat nnaaggntac aaagaaangg gtcaacaaat ttaacaanaa 420
 caacctgtnc caaagncccg aaacaacgca ataatacccc antaatnaaa ttncgctcct 480
 ggctaacctt ctccaacaac gaattaatgg aaanttctga c 521

<210> 4
 <211> 82
 <212> PRT
 <213> Oryza sativa

<400> 4
 Leu Thr Asp Lys Arg Gln Phe Val Ser Glu Leu Ala Arg Val Ala Ala
 1 5 10 15
 Pro Gly Ala Arg Ile Ile Ile Val Thr Trp Cys His Arg Asn Leu Glu
 20 25 30
 Pro Ser Glu Glu Ser Leu Lys Pro Asp Glu Leu Asn Leu Leu Lys Arg
 35 40 45
 Ile Cys Asp Ala Tyr Tyr Leu Pro Asp Trp Cys Ser Pro Ser Asp Tyr
 50 55 60
 Val Lys Ile Ala Glu Ser Leu Ser Leu Glu Asp Ile Arg Thr Ala Asp
 65 70 75 80
 Trp Ser

<210> 5
 <211> 592
 <212> DNA
 <213> Oryza sativa

<220>
 <221> unsure
 <222> (295)
 <223> n= a, c, g, or t

<220>
 <221> unsure

<222> (342)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (491)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (495)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (519)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (549)
 <223> n= a, c, g, or t

<400> 5
 cttacatgta agctcgtgcc gaattcggca cgagcttaca aaatggccca cgccgcgcgcg 60
 gccacgggcg cactggcacc gctgcatcca ctgctccgct gcacgagccg tcatctctgc 120
 gcctcggctt cccctcgcgc cggcctctgc ctccaccacc accgccgcgcg ccgcgcgcgcg 180
 agccggagga cgaaactcgc cgtgcgcgcg atggcaccga cgttgctctc gtcgtcgacg 240
 gcggcggcag ctcccccggg gctgaaggag ggcacgcgcg ggctctacga cgaancgtcc 300
 ggctgtgtgg agagcatctg gggcgagcac atgcaccacg gnttctacga cgccggcgag 360
 ggcgctcca tgtccgacca ccgccgcgcc ccagttcgca tgatcgagga cctcgccctc 420
 gccgcctccc cgatgatcgg agaagaacca aaatgtattg atttggtgtg gattggtgtg 480
 actcaagata ntggngaaca atacggacgc atgctacgna tacttgatcg gtgcaggtga 540
 aagagaaanc ctgcgcgaga caaggtatag caagtccctt taagttgtat ga 592

<210> 6
 <211> 144
 <212> PRT
 <213> Oryza sativa

<220>
 <221> UNSURE
 <222> (99)
 <223> Xaa = ANY AMINO ACID

<400> 6
 Leu Thr Cys Lys Leu Val Pro Asn Ser Ala Arg Ala Tyr Lys Met Ala
 1 5 10 15
 His Ala Ala Ala Ala Thr Gly Ala Leu Ala Pro Leu His Pro Leu Leu
 20 25 30
 Arg Cys Thr Ser Arg His Leu Cys Ala Ser Ala Ser Pro Arg Ala Gly
 35 40 45
 Leu Cys Leu His His His Arg Arg Arg Arg Arg Ser Ser Arg Arg Thr
 50 55 60
 Lys Leu Ala Val Arg Ala Met Ala Pro Thr Leu Ser Ser Ser Ser Thr
 65 70 75 80

Ala Ala Ala Ala Pro Pro Gly Leu Lys Glu Gly Ile Ala Gly Leu Tyr
 85 90 95

Asp Glu Xaa Ser Gly Val Trp Glu Ser Ile Trp Gly Glu His Met His
 100 105 110

His Gly Phe Tyr Asp Ala Gly Glu Gly Ala Ser Met Ser Asp His Arg
 115 120 125

Arg Ala Pro Val Arg Met Ile Glu Asp Leu Ala Phe Ala Ala Ser Pro
 130 135 140

<210> 7
 <211> 1331
 <212> DNA
 <213> Glycine max

<400> 7

gtgacatggc	caccgtgggtg	aggatcccaa	caatctcatg	catccacatc	cacacgttcc	60
gttcccaatc	ccctcgcaact	ttcgccagaa	tccgggtcgg	acccaggtcg	tgggtctcta	120
ttcgggcatc	ggcagcgagc	tcgagagag	gggagatagt	attggagcag	aagccgaaga	180
aggatgacaa	gaagaagctg	cagaagggaa	tcgcagagtt	ttacgacgag	tcgtctggct	240
tatgggagaa	catttggggc	gaccacatgc	accatggctt	ttatgactcg	gattccactg	300
tttcgctttc	ggatcatcgt	gctgctcaga	tccgaatgat	ccaagagtct	cttcgctttg	360
cctctgtttc	tgaggagcgt	agtaaatggc	ccaagagtat	agttgatgtt	gggtgtggca	420
taggtggcag	ctctagatac	ctggccaaga	aattttggagc	aaccagtgtg	ggcatcactc	480
tgagtctctg	tcaagctcaa	agagcaaata	ctcttgctgc	tgctcaagga	ttggctgata	540
aggtttcctt	tcaggttgct	gacgctctac	agcaaccatt	ctctgacggc	cagtttgatc	600
tggtgtggtc	catggagagt	ggagagcata	tgccctgacaa	agctaagttt	gttgagaggt	660
tagctcgggt	agcagcacca	ggtgccatta	taataatagt	aacatggtgc	cacagggatc	720
ttggccctga	cgaacaatcc	ttacatccat	gggagcaaga	tctcttaaag	aagattttgcg	780
atgcatatta	cctccctgcc	tggtgctcaa	cttctgatta	tgtaagtgtg	ctccaatccc	840
tgtcacttca	ggacatcaag	tcagaagatt	ggtctcgctt	tggtgctcca	ttttggccag	900
cagtgatcac	ctcagccttc	acatggaagg	gtctatcttc	actcttgagc	agtggtaagc	960
ttggaattta	tattgcattt	caaaaacaaa	cccccccatc	ttctattgca	acttgcaagt	1020
cttatgtcac	tgatcattat	ttccacacta	gataaccctt	tacaactaag	aacgtagtct	1080
tcatgttcag	cgaaatagat	aaaaatatgc	aacagagtca	gagacagggt	gcatgatatt	1140
tacaagaaaa	tatcttttat	atatataaat	gattcaatca	aattacttga	tgaggattat	1200
gagtgaataa	gagaggacag	tcatagaaac	tttatcctac	attccttcta	tttccacttc	1260
tgtcaaatat	tcctttcatc	ttagctatgc	tacttgactt	gagtaaaaaa	aaaaaaaaaa	1320
aaaaaaaaaa	a					1331

<210> 8
 <211> 349
 <212> PRT
 <213> Glycine max

<400> 8

Met	Ala	Thr	Val	Val	Arg	Ile	Pro	Thr	Ile	Ser	Cys	Ile	His	Ile	His
1				5				10					15		
Thr	Phe	Arg	Ser	Gln	Ser	Pro	Arg	Thr	Phe	Ala	Arg	Ile	Arg	Val	Gly
		20						25					30		
Pro	Arg	Ser	Trp	Ala	Pro	Ile	Arg	Ala	Ser	Ala	Ala	Ser	Ser	Glu	Arg
		35					40					45			
Gly	Glu	Ile	Val	Leu	Glu	Gln	Lys	Pro	Lys	Lys	Asp	Asp	Lys	Lys	Lys
	50					55					60				
Leu	Gln	Lys	Gly	Ile	Ala	Glu	Phe	Tyr	Asp	Glu	Ser	Ser	Gly	Leu	Trp

65				70				75				80			
Glu	Asn	Ile	Trp	Gly	Asp	His	Met	His	His	Gly	Phe	Tyr	Asp	Ser	Asp
				85					90					95	
Ser	Thr	Val	Ser	Leu	Ser	Asp	His	Arg	Ala	Ala	Gln	Ile	Arg	Met	Ile
			100					105					110		
Gln	Glu	Ser	Leu	Arg	Phe	Ala	Ser	Val	Ser	Glu	Glu	Arg	Ser	Lys	Trp
		115					120					125			
Pro	Lys	Ser	Ile	Val	Asp	Val	Gly	Cys	Gly	Ile	Gly	Gly	Ser	Ser	Arg
	130					135					140				
Tyr	Leu	Ala	Lys	Lys	Phe	Gly	Ala	Thr	Ser	Val	Gly	Ile	Thr	Leu	Ser
145					150					155					160
Pro	Val	Gln	Ala	Gln	Arg	Ala	Asn	Ala	Leu	Ala	Ala	Ala	Gln	Gly	Leu
				165					170					175	
Ala	Asp	Lys	Val	Ser	Phe	Gln	Val	Ala	Asp	Ala	Leu	Gln	Gln	Pro	Phe
			180					185					190		
Ser	Asp	Gly	Gln	Phe	Asp	Leu	Val	Trp	Ser	Met	Glu	Ser	Gly	Glu	His
	195					200						205			
Met	Pro	Asp	Lys	Ala	Lys	Phe	Val	Gly	Glu	Leu	Ala	Arg	Val	Ala	Ala
	210					215					220				
Pro	Gly	Ala	Ile	Ile	Ile	Ile	Val	Thr	Trp	Cys	His	Arg	Asp	Leu	Gly
225						230				235					240
Pro	Asp	Glu	Gln	Ser	Leu	His	Pro	Trp	Glu	Gln	Asp	Leu	Leu	Lys	Lys
				245					250					255	
Ile	Cys	Asp	Ala	Tyr	Tyr	Leu	Pro	Ala	Trp	Cys	Ser	Thr	Ser	Asp	Tyr
			260					265					270		
Val	Lys	Leu	Leu	Gln	Ser	Leu	Ser	Leu	Gln	Asp	Ile	Lys	Ser	Glu	Asp
		275					280					285			
Trp	Ser	Arg	Phe	Val	Ala	Pro	Phe	Trp	Pro	Ala	Val	Ile	Arg	Ser	Ala
	290					295					300				
Phe	Thr	Trp	Lys	Gly	Leu	Ser	Ser	Leu	Leu	Ser	Ser	Gly	Lys	Leu	Gly
305					310					315					320
Ile	Tyr	Ile	Ala	Phe	Gln	Lys	Gln	Thr	Pro	Pro	Ser	Ser	Ile	Ala	Thr
				325					330					335	
Cys	Lys	Ser	Tyr	Val	Thr	Asp	His	Tyr	Phe	His	Thr	Arg			
			340					345							

<210> 9

<211> 1011

<212> DNA

<213> Triticum aestivum

<220>

<221> unsure

<222> (385)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (396)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (909)

<223> n= a, c, g, or t

<400> 9

acgagtcgtc	cggcctgtgg	gagagcatct	ggggcgagca	catgcaccac	ggcttctacg	60
actccggcga	ggccgcctcc	atgtccgacc	accgccgcgc	ccagatccgc	atgatcgagg	120
aggccctcgc	cttcgcgcgc	gtccccgacg	atccgacaaa	caaaccctaa	acgattgttg	180
atgtttggatg	cggaatcggt	ggtagctcaa	gatacctggg	cgaacaaata	tggagcacia	240
tgctctggga	tcacattgac	ccagtgcgaag	ctgagagagg	aaatgccctc	gcggcagcgc	300
aaggggttgt	ccggacaagg	ttctttccaa	ttgctgatct	ctgggagcaa	ccatttctctg	360
gatgggcatt	tgatcttgtc	cggnccatg	ggagantggg	gacacatgcc	gaacaaacag	420
aagtttgtaa	gagagctggc	acgcgtcgca	gctccaggag	caactatcat	catcgtgacc	480
tggtgccata	ggaacctcgc	gccatcgagg	gactcactga	aacctgacga	gctgaatctt	540
ttgaaaaaga	tttgtgatgc	atattacctc	ccggattggg	gctctccctc	ggattatgtc	600
aagattgccg	agtcattgtc	tcttgaggat	atcaaaacgg	ccgactgggc	tgaaaacgtg	660
gccccgttct	ggcctgctgt	catccaatca	gactgacat	ggaaaggcct	cacttctcta	720
ctaaggatg	gatggaagac	gataaaggga	gcactggtga	tgcctctcat	gatccaaggc	780
tacaagaaag	gcctcattaa	gttcaagcat	catcacctgc	cacaaacccc	aagcagccat	840
agaaggagaa	cctggaggcc	gcatcgccca	agagtggtag	aatagaacca	tgtgattgga	900
atagactcng	cttgctgtcg	ccttggtagc	tgaataattc	gtgttaccgt	gcctctgtat	960
ctgcaactgg	aagtgccata	tgagaatggt	tcctaaaagc	aaaatctcct	c	1011

<210> 10

<211> 293

<212> PRT

<213> Triticum aestivum

<220>

<221> UNSURE

<222> (127) (133)

<223> Xaa = ANY AMINO ACID

<400> 10

Glu	Ser	Ser	Gly	Leu	Trp	Glu	Ser	Ile	Trp	Gly	Glu	His	Met	His	His
1				5					10					15	
Gly	Phe	Tyr	Asp	Ser	Gly	Glu	Ala	Ala	Ser	Met	Ser	Asp	His	Arg	Arg
			20					25					30		
Ala	Gln	Ile	Arg	Met	Ile	Glu	Glu	Ala	Leu	Ala	Phe	Ala	Ala	Val	Pro
			35					40					45		
Asp	Asp	Pro	Thr	Asn	Lys	Pro	Lys	Thr	Ile	Val	Asp	Val	Gly	Cys	Gly
		50				55					60				
Ile	Gly	Gly	Ser	Ser	Arg	Tyr	Leu	Gly	Glu	Gln	Ile	Trp	Ser	Thr	Met
	65				70					75					80
Leu	Trp	Asp	His	Ile	Asp	Pro	Val	Gln	Ala	Glu	Arg	Gly	Asn	Ala	Leu
			85					90						95	
Ala	Ala	Ala	Gln	Gly	Val	Val	Arg	Thr	Arg	Phe	Phe	Pro	Ile	Ala	Asp

100					105					110					
Leu	Trp	Glu	Gln	Pro	Phe	Pro	Gly	Trp	Ala	Phe	Asp	Leu	Val	Xaa	Xaa
		115					120					125			
Xaa	Xaa	Xaa	Xaa	Xaa	His	Met	Pro	Asn	Lys	Gln	Lys	Phe	Val	Ser	Glu
		130				135					140				
Leu	Ala	Arg	Val	Ala	Ala	Pro	Gly	Ala	Thr	Ile	Ile	Ile	Val	Thr	Trp
					150					155					160
Cys	His	Arg	Asn	Leu	Ala	Pro	Ser	Glu	Asp	Ser	Leu	Lys	Pro	Asp	Glu
				165					170					175	
Leu	Asn	Leu	Leu	Lys	Lys	Ile	Cys	Asp	Ala	Tyr	Tyr	Leu	Pro	Asp	Trp
			180					185					190		
Cys	Ser	Pro	Ser	Asp	Tyr	Val	Lys	Ile	Ala	Glu	Ser	Leu	Ser	Leu	Glu
		195					200					205			
Asp	Ile	Lys	Thr	Ala	Asp	Trp	Ser	Glu	Asn	Val	Ala	Pro	Phe	Trp	Pro
		210				215					220				
Ala	Val	Ile	Gln	Ser	Ala	Leu	Thr	Trp	Lys	Gly	Leu	Thr	Ser	Leu	Leu
					230					235					240
Arg	Ser	Gly	Trp	Lys	Thr	Ile	Lys	Gly	Ala	Leu	Val	Met	Pro	Leu	Met
				245					250					255	
Ile	Gln	Gly	Tyr	Lys	Lys	Gly	Leu	Ile	Lys	Phe	Lys	His	His	His	Leu
			260					265				270			
Pro	Gln	Thr	Pro	Ser	Ser	His	Arg	Arg	Arg	Thr	Trp	Arg	Pro	His	Arg
		275					280					285			
Pro	Arg	Val	Val	Glu											
				290											

<210> 11

<211> 432

<212> DNA

<213> Oryza sativa

<220>

<221> unsure

<222> (361)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (368)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (401)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (448)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (428)

<223> n= a, c, g, or t

<400> 11

```
ccacgtcgag ctctggtgag cagacgccgc gtccgccgcg ggccgggttcg ccttcgccct 60
gggcgcgcgc ctgcgcgcca ggtccgacct ctccacgggg aactccgcgc acgcctccct 120
cctcctccgc tcgcctccg tcgcgttcct cttcaccgcc ccctacggcg gcgaccacgg 180
cgtcggcgcg gacgcggcca ccaccgcctc catcccttcc ttctcccctt cctttctccc 240
cgctcctgga tcaggccaca ggaggggagc gatggtggag gcggccaccg taggcggcgg 300
aggtggcggt cctcctccct agctcccaga cccggctgga ggagggagtg atggtggcgg 360
naggcggngc tcctcctctt cctcctccct tcctcacaat ntggccggag ggaggaang 420
gccgcggncc aa 432
```

<210> 12

<211> 75

<212> PRT

<213> Oryza sativa

<400> 12

```
His Val Glu Leu Trp Cys Ala Asp Ala Ala Ser Ala Ala Gly Arg Phe
  1             5             10             15
```

```
Ala Phe Ala Leu Gly Ala Pro Leu Ala Ala Arg Ser Asp Leu Ser Thr
          20             25             30
```

```
Gly Asn Ser Ala His Ala Ser Leu Leu Leu Arg Ser Ala Ser Val Ala
          35             40             45
```

```
Phe Leu Phe Thr Ala Pro Tyr Gly Gly Asp His Gly Val Gly Ala Asp
          50             55             60
```

```
Ala Ala Thr Thr Ala Ser Ile Pro Ser Phe Ser
          65             70             75
```

<210> 13

<211> 628

<212> DNA

<213> Oryza sativa

<220>

<221> unsure

<222> (315)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (325)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (395)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (438)

<223> n= a, c, g, or t

<220>
<221> unsure
<222> (472)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (488)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (491) (492)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (502)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (526)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (535)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (537)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (346)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (563)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (582)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (590)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (602)
<223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (617)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (620)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (623)
 <223> n= a, c, g, or t

<400> 13
 gaagagctac ggccctccgcc gggttcgacca cgtcgtcggc aacgtgccgg agctcgctcc 60
 ggtagccgcg tacatctccg gggttcaccgg gttccacgag ttccgccgagt tcaccgccga 120
 ggacgtgggc accgccgaga gcggcctcaa ctccggtggtg ctccccaaca acgcggagac 180
 cgtgctgctg ccgctcaacg agccgggtgca cggcaccaag cggcggagcc agatacagac 240
 gtacctggac caccacggcg gcccgggggt gcagcacatc gcgctggcca gcgacgacgt 300
 gctcgggacg ctganggaga tgccngggcg ctccgcattg gcggttcgat tcttggggccc 360
 gccgccgcca actactacga cggtcgcgcg gcgcncggg acttctctcg ggagagcaat 420
 taacaatgcc aagactcngg tgccttgac aaggatacaa gggtttccaa tnttaacaag 480
 cattgaanag nnactttctg gngagatcaa gatgggtgat aaagttaatg gaagntncaa 540
 aggggntcgc gggttgaaga atntcggctt aatcataggg tngaaacctn agcacagcct 600
 anttaggtca gagatgngcn ganaaatt 628

<210> 14
 <211> 123
 <212> PRT
 <213> Oryza sativa

<220>
 <221> UNSURE
 <222> (103)
 <223> Xaa = ANY AMINO ACID

<400> 14
 Tyr Gly Leu Arg Arg Phe Asp His Val Val Gly Asn Val Pro Glu Leu
 1 5 10 15
 Ala Pro Val Ala Ala Tyr Ile Ser Gly Phe Thr Gly Phe His Glu Phe
 20 25 30
 Ala Glu Phe Thr Ala Glu Asp Val Gly Thr Ala Glu Ser Gly Leu Asn
 35 40 45
 Ser Val Val Leu Ala Asn Asn Ala Glu Thr Val Leu Leu Pro Leu Asn
 50 55 60
 Glu Pro Val His Gly Thr Lys Arg Arg Ser Gln Ile Gln Thr Tyr Leu
 65 70 75 80
 Asp His His Gly Gly Pro Gly Val Gln His Ile Ala Leu Ala Ser Asp
 85 90 95
 Asp Val Leu Gly Thr Leu Xaa Glu Met Pro Gly Ala Ser Ala Trp Ala
 100 105 110

Val Arg Phe Leu Gly Pro Pro Pro Pro Thr Thr
115 120

<210> 15
<211> 1027
<212> DNA
<213> Glycine max

<220>
<221> unsure
<222> (617)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (829)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (841)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (876)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (911)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (918) (919)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (927)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (936)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (938)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (969)
<223> n= a, c, g, or t

<220>
<221> unsure
<222> (979)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (981)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (992)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (1004)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (1012)

<223> n= a, c, g, or t

<220>

<221> unsure

<222> (1017)

<223> n= a, c, g, or t

<400> 15

tcacaccaca	ccaatgccaa	tacccatgtg	caacgaaatt	caagcccaag	cccaagccca	60
agcccaagcc	caacctgggt	ttaagctcgt	cggtttcaaa	aacttcgtcc	gaaccaatcc	120
taagtccgac	cgctttcaag	tcaaccgctt	ccaccacatc	gagttctggt	gcaccgatgc	180
caccaacgcc	tctcgccgat	tctcttgggg	acttggaatg	cctattgtgg	caaaatctga	240
tctctccacc	ggaaacccaa	tccacgcctc	ctacctctc	cgctccggcg	acctctcctt	300
cctctttctc	gctccttaet	ctccctctct	ctccgcgcgc	tcctccgctg	cctcctccgc	360
ctccattccc	agtttcgaag	ccgccacctg	ccttgccctc	gctgccaaac	acggcttcgg	420
cgtccgcgcc	atcgcccttg	aagtcgccga	cgcggaagcc	gctttcagcg	ccagcgtcgc	480
gaaaggagcc	gagccggcgt	cgccgcgcgt	tctcgtcgac	gatcgcaacc	gcttcgcgga	540
ggtgcgcctc	tacggcgacg	tgggtgctccg	ctacgtcagc	tacaaggacg	ccgcgcgcga	600
ggcgccacac	gcagatncgt	cgcggtgggt	cctgccggga	ttcgaggccg	cggcgtcgtc	660
gtcttcggtt	ccggagctgg	actacgggat	ccggcggtcg	gaccacgccg	tcgggaacgt	720
tccggagctg	gcgcggcgcg	tgaggtacct	gaaaggcttc	agcggattcc	acgagttcgc	780
ggagttcacc	gcggaggacg	tgggaacgag	cgagagcggg	ttgaactcng	tggttctggc	840
ngaacaactc	ggagacgggt	ttgctgccgc	tgaacnagcc	cggtttacgg	aacgaaagag	900
gaagaagcca	nattgagnnc	gtatttngaa	cacaancnaa	aggtgcttgg	tgtgcagcaa	960
ccttgccgnt	tgttactcnc	naacatcttc	ancacactga	ggaagagatg	anaaaanccg	1020
acgtttg						1027

<210> 16

<211> 276

<212> PRT

<213> Glycine max

<220>

<221> UNSURE

<222> (202)

<223> Xaa = ANY AMINO ACID

<400> 16

Met Pro Ile Pro Met Cys Asn Glu Ile Gln Ala Gln Ala Gln Ala Gln

1

5

10

15

Ala Gln Ala Gln Pro Gly Phe Lys Leu Val Gly Phe Lys Asn Phe Val
 20 25 30
 Arg Thr Asn Pro Lys Ser Asp Arg Phe Gln Val Asn Arg Phe His His
 35 40 45
 Ile Glu Phe Trp Cys Thr Asp Ala Thr Asn Ala Ser Arg Arg Phe Ser
 50 55 60
 Trp Gly Leu Gly Met Pro Ile Val Ala Lys Ser Asp Leu Ser Thr Gly
 65 70 75 80
 Asn Gln Ile His Ala Ser Tyr Leu Leu Arg Ser Gly Asp Leu Ser Phe
 85 90 95
 Leu Phe Ser Ala Pro Tyr Ser Pro Ser Leu Ser Ala Gly Ser Ser Ala
 100 105 110
 Ala Ser Ser Ala Ser Ile Pro Ser Phe Asp Ala Ala Thr Cys Leu Ala
 115 120 125
 Phe Ala Ala Lys His Gly Phe Gly Val Arg Ala Ile Ala Leu Glu Val
 130 135 140
 Ala Asp Ala Glu Ala Ala Phe Ser Ala Ser Val Ala Lys Gly Ala Glu
 145 150 155 160
 Pro Ala Ser Pro Pro Val Leu Val Asp Asp Arg Thr Gly Phe Ala Glu
 165 170 175
 Val Arg Leu Tyr Gly Asp Val Val Leu Arg Tyr Val Ser Tyr Lys Asp
 180 185 190
 Ala Ala Pro Gln Ala Pro His Ala Asp Xaa Ser Arg Trp Phe Leu Pro
 195 200 205
 Gly Phe Glu Ala Ala Ala Ser Ser Ser Ser Phe Pro Glu Leu Asp Tyr
 210 215 220
 Gly Ile Arg Arg Leu Asp His Ala Val Gly Asn Val Pro Glu Leu Ala
 225 230 235 240
 Pro Ala Val Arg Tyr Leu Lys Gly Phe Ser Gly Phe His Glu Phe Ala
 245 250 255
 Glu Phe Thr Ala Glu Asp Val Gly Thr Ser Glu Ser Gly Leu Asn Ser
 260 265 270
 Val Val Leu Ala
 275

<210> 17

<211> 511

<212> DNA

<213> *Vernonia mesipifolia*

<220>

<221> unsure

<222> (494)

<223> n= a, c, g, or t

<400> 17

```

ccacaccgat tgccggaact tcaccgcctc tcacggcctt gcagtccgag caatcgccat 60
tgaagtcgat gacgccgaat tagctttctc cgtcagcgtc tctcacggcg ctaaaccctc 120
cgctgctcct gtaacccttg gaaacaacga cgctgtattg tctgaagtta agctttacgg 180
cgatgtcgct ttccggtaca taagttacaa aaatccgaac tatacatctt cttttttgcc 240
cgggttcgag cccgttgaaa agacgtcgtc gttttatgac cttgactacg gtatccgccg 300
tttgaccac gccgtaggaa cgtccctgag cttgcttcgg cagtggacta cgtgaaatca 360
ttcaccgat tccatgagtt cgccgaattc accgcggagg acgtcgggac gagcgagagg 420
gaactgaatt cggtcgtttt agcttgcaac agtgagatgg tcttgattcc gatgaacgag 480
ccggtgtacg gaanaaaag aagagccaga t 511

```

<210> 18

<211> 170

<212> PRT

<213> Vernonia mesipifolia

<220>

<221> UNSURE

<222> (165)

<223> Xaa = ANY AMINO ACID

<400> 18

```

His Thr Asp Cys Arg Asn Phe Thr Ala Ser His Gly Leu Ala Val Arg
 1              5              10              15

Ala Ile Ala Ile Glu Val Asp Asp Ala Glu Leu Ala Phe Ser Val Ser
          20              25              30

Val Ser His Gly Ala Lys Pro Ser Ala Ala Pro Val Thr Leu Gly Asn
          35              40              45

Asn Asp Val Val Leu Ser Glu Val Lys Leu Tyr Gly Asp Val Ala Phe
          50              55              60

Arg Tyr Ile Ser Tyr Lys Asn Pro Asn Tyr Thr Ser Ser Phe Leu Pro
          65              70              75              80

Gly Phe Glu Pro Val Glu Lys Thr Ser Ser Phe Tyr Asp Leu Asp Tyr
          85              90              95

Gly Ile Arg Arg Leu Asp His Ala Val Gly Asn Val Pro Glu Leu Ala
          100              105              110

Ser Ala Val Asp Tyr Val Lys Ser Phe Thr Gly Phe His Glu Phe Ala
          115              120              125

Glu Phe Thr Ala Glu Asp Val Gly Thr Ser Glu Arg Glu Leu Asn Ser
          130              135              140

Val Val Leu Ala Cys Asn Ser Glu Met Val Leu Ile Pro Met Asn Glu
          145              150              155              160

Pro Val Tyr Gly Xaa Lys Gly Arg Ala Arg
          165              170

```

<210> 19

<211> 1165

<212> DNA

<213> Triticum aestivum

<220>

<221> unsure
 <222> (567)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (596)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (627)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (639)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (655)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (697)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (709)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (1039)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (1066)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (1126)
 <223> n= a, c, g, or t

<220>
 <221> unsure
 <222> (1152)
 <223> n= a, c, g, or t

<400> 19
 caagaagcga acacacacca tgccgcccac ccccaccacc cccgcagcca ccggcgccgc 60
 cgcggtgacg ccggagcacg cgcggccgcg ccgaatggtc cgcttcaacc cgcgcagcga 120
 ccgcttcac acgctcgct tccaccacgt cgagttctgg tgcgcggacg ccgcctccgc 180
 cgccggccgc ttgccttgc cgtcgggcg gccgctcgcc gccaggtccg acctctccac 240
 ggggaactcc gtgcacgcct cccagctgct ccgctcgggc aacctcgct tctcttcac 300
 cgcgccttac gccaacggct ggcacgccc caccgcctcc ctgccctct tctccgccga 360

```

cgccgcgcgc cggttctccg cggaccacgg gctcgcggtg cgctccatag cgctgcgcgt 420
cgccgagccc gccgaggcct tccgcgccag cgtcgacggg ggccgcgcgc cggccttcag 480
ccccgtggac ctccggccgc gcttcggctt tgcggaggtc gagctctacg gcgacgtcgt 540
gtccgccttc gtcagcatcc ggacggnacg gacgtgcctt cttgccgggg ttccganggcg 600
ttgagcaacc ggggtgcgtg gactaanggc tgacacggnt tgacacgttg tccgnaagtc 660
cggagcttgc ttccggcgccg cctaacgtag ccggctnaac gggttcaana attcgccagt 720
taacacggag gacgtgggca cggccgagag cgggctcaac tcgatggtgc tcgccaacaa 780
ctcggagggc gtgctgctgc cgctcaacga gccggtgcac ggcaccaagc gccggagcca 840
gatacagacg ttcttggaac accacggcgg ctcgggcgtg cagcacatcg cggtggccag 900
cagcgacgtg ctccaggacgc tcagggagat gcgtgcgcgc tccgccatgg gcggcttcga 960
cttcctgcca cccccgtgc cgaagtacta cgaaggcgtg cggcgcatcg cgggggatgt 1020
gctctcggag gcgcaaatna aggaatgcaa gaactggggg tgctcntcca caaggaagaa 1080
caaaggggtg tgctacaaat cctcaacaag ccaatntggg acaagccgac ttgttcctgg 1140
agatattcac angatctggt gcatg 1165

```

<210> 20
 <211> 179
 <212> PRT
 <213> Triticum aestivum

<400> 20
 Met Pro Pro Thr Pro Thr Thr Pro Ala Ala Thr Gly Ala Ala Ala Val
 1 5 10 15
 Thr Pro Glu His Ala Arg Pro Arg Arg Met Val Arg Phe Asn Pro Arg
 20 25 30
 Ser Asp Arg Phe His Thr Leu Ala Phe His His Val Glu Phe Trp Cys
 35 40 45
 Ala Asp Ala Ala Ser Ala Ala Gly Arg Phe Ala Phe Ala Leu Gly Ala
 50 55 60
 Pro Leu Ala Ala Arg Ser Asp Leu Ser Thr Gly Asn Ser Val His Ala
 65 70 75 80
 Ser Gln Leu Leu Arg Ser Gly Asn Leu Ala Phe Leu Phe Thr Ala Pro
 85 90 95
 Tyr Ala Asn Gly Cys Asp Ala Ala Thr Ala Ser Leu Pro Ser Phe Ser
 100 105 110
 Ala Asp Ala Ala Arg Arg Phe Ser Ala Asp His Gly Leu Ala Val Arg
 115 120 125
 Ser Ile Ala Leu Arg Val Ala Asp Ala Ala Glu Ala Phe Arg Ala Ser
 130 135 140
 Val Asp Gly Gly Ala Arg Pro Ala Phe Ser Pro Val Asp Leu Gly Arg
 145 150 155 160
 Gly Phe Gly Phe Ala Glu Val Glu Leu Tyr Gly Asp Val Val Leu Arg
 165 170 175
 Phe Val Ser

<210> 21
 <211> 1102
 <212> DNA
 <213> Zea mays

<220>
 <221> unsure
 <222> (454)
 <223> n = a, c, g, or t

<220>
 <221> unsure
 <222> (1072)
 <223> n = a, c, g, or t

<220>
 <221> unsure
 <222> (1083)
 <223> n = a, c, g, or t

<220>
 <221> unsure
 <222> (1092)
 <223> n = a, c, g, or t

<220>
 <221> unsure
 <222> (1100)
 <223> n = a, c, g, or t

<400> 21
 atggctcacg cggcgctgct ccattgctcc cagtcctcca ggagcctcgc agcctgccgc 60
 cgcggcagyc actaccgcgc cccttcgcac gtcccgcgcc actcccgcgc tctccgacgc 120
 gccgtcgta gcctgcgtcc gatggcctcg tcgacggctc agggccccgc gacggcgccg 180
 ccgggtctga aggagggcat cgcggggctg tacgacgagt cgtcggggct gtgggagAAC 240
 atctggggcg accacatgca ccacggcttc tacgactcga gcgaggccgc ctccatggcc 300
 gatcaccgcc gcgccagat ccgcatgatc gaggaggcgc tcgccttcgc cgggtgtcca 360
 gcctcagatg atccagagaa gacacaaaaa acaatagtcg atgtcggatg tggcattggt 420
 ggtagctcaa ggtacttggc gaagaaatac ggancgcagt gcaactggat cactgtgagc 480
 cctgttcaag ccgagagagg aaatgctctc gctgcagcgc aggggttgtc ggatcagggt 540
 actctgcaag ttgctgatgc tctggagcaa ccgtttctcg acgggcagtt cgaatctggtg 600
 tgggtccatg agagtggcga gcacatgccg gacaagagaa agtttggttag tgagctagca 660
 cgcggtggcg ctccctggagg gacaataatc atcgtgacat ggtgccatag gaacctggat 720
 ccatccgaaa cctcgctaaa gcccgatgaa ctgagcctcc tgaggaggat atgcgacgcg 780
 tactacctcc cggactgggtg ctcaacctca gactatgtga acattgccaa gtcactgtct 840
 ctcgaggata tcaagacagc tgactggctg gagaacgtgg ccccgttttg gcccgcctg 900
 ataaaatcag cgctaacatg gaagggcttc acctctctgc tgacgaccgg atggaagacg 960
 atcagaggcg cgatggtgat gccgctaata atccagggt acaagaagg gctcatcaaa 1020
 ttcacatca tcacctgtcg caagcctgga gccgcgtagt gatctatacc gnccacggcg 1080
 tcnttaactc tnacggaaan ct 1102

<210> 22
 <211> 352
 <212> PRT
 <213> Zea mays

<220>
 <221> UNSURE
 <222> (152)
 <223> Xaa = ANY AMINO ACID

<400> 22
 Met Ala His Ala Ala Leu Leu His Cys Ser Gln Ser Ser Arg Ser Leu
 1 5 10 15

Ala Ala Cys Arg Arg Gly Ser His Tyr Arg Ala Pro Ser His Val Pro
 20 25 30
 Arg His Ser Arg Arg Leu Arg Arg Ala Val Val Ser Leu Arg Pro Met
 35 40 45
 Ala Ser Ser Thr Ala Gln Ala Pro Ala Thr Ala Pro Pro Gly Leu Lys
 50 55 60
 Glu Gly Ile Ala Gly Leu Tyr Asp Glu Ser Ser Gly Leu Trp Glu Asn
 65 70 75 80
 Ile Trp Gly Asp His Met His His Gly Phe Tyr Asp Ser Ser Glu Ala
 85 90 95
 Ala Ser Met Ala Asp His Arg Arg Ala Gln Ile Arg Met Ile Glu Glu
 100 105 110
 Ala Leu Ala Phe Ala Gly Val Pro Ala Ser Asp Asp Pro Glu Lys Thr
 115 120 125
 Pro Lys Thr Ile Val Asp Val Gly Cys Gly Ile Gly Gly Ser Ser Arg
 130 135 140
 Tyr Leu Ala Lys Lys Tyr Gly Xaa Gln Cys Thr Gly Ile Thr Leu Ser
 145 150 155 160
 Pro Val Gln Ala Glu Arg Gly Asn Ala Leu Ala Ala Ala Gln Gly Leu
 165 170 175
 Ser Asp Gln Val Thr Leu Gln Val Ala Asp Ala Leu Glu Gln Pro Phe
 180 185 190
 Pro Asp Gly Gln Phe Asp Leu Val Trp Ser Met Glu Ser Gly Glu His
 195 200 205
 Met Pro Asp Lys Arg Lys Phe Val Ser Glu Leu Ala Arg Val Ala Ala
 210 215 220
 Pro Gly Gly Thr Ile Ile Ile Val Thr Trp Cys His Arg Asn Leu Asp
 225 230 235 240
 Pro Ser Glu Thr Ser Leu Lys Pro Asp Glu Leu Ser Leu Leu Arg Arg
 245 250 255
 Ile Cys Asp Ala Tyr Tyr Leu Pro Asp Trp Cys Ser Pro Ser Asp Tyr
 260 265 270
 Val Asn Ile Ala Lys Ser Leu Ser Leu Glu Asp Ile Lys Thr Ala Asp
 275 280 285
 Trp Ser Glu Asn Val Ala Pro Phe Trp Pro Ala Val Ile Lys Ser Ala
 290 295 300
 Leu Thr Trp Lys Gly Phe Thr Ser Leu Leu Thr Thr Gly Trp Lys Thr
 305 310 315 320
 Ile Arg Gly Ala Met Val Met Pro Leu Met Ile Gln Gly Tyr Lys Lys
 325 330 335
 Gly Leu Ile Lys Phe Thr Ile Ile Thr Cys Arg Lys Pro Gly Ala Ala

340

<210> 23
<211> 521
<212> DNA
<213> Oryza sativa

<220>
<221> unsure
<222> (269)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (274)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (286)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (302)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (330)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (381)..(382)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (387)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (398)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (418)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (429)
<223> n = a, c, g, or t

<220>
<221> unsure
<222> (436)
<223> n = a, c, g, or t

345

350

<220>
 <221> unsure
 <222> (462)
 <223> n = a, c, g, or t

<220>
 <221> unsure
 <222> (467)
 <223> n = a, c, g, or t

<220>
 <221> unsure
 <222> (473)
 <223> n = a, c, g, or t

<220>
 <221> unsure
 <222> (514)
 <223> n = a, c, g, or t

<400> 23
 cttacagaca aacggcagtt tgtaagcgag ctggcacgcg tcgcagctcc tggggcgaga 60
 ataatcattg tgacctggtg ccataggaac ctcgagccat ccgaagagtc cctgaaacct 120
 gatgagctga atctcctgaa aaggatatgc gatgcatatt atctcccaga ctggtgctct 180
 cttctgatt atgtcaaaat tgccgagtca ctgtctcttg aggatataag gacagctgat 240
 tgggtcaagag aacgtcgccc caatccggnc tgcnggttat taaatnaagc aattgacatg 300
 gnaagggtta actttctcct ggctaagaan tgggtgggaa gacgattaag aagggtggaat 360
 gggatgatgcc tccggatgat nnaaggntac aaagaaangg gtcaacaaat ttaacaanaa 420
 caacctgtnc caaagncccg aaacaacgca ataatacccc antaatnaaa ttncgctcct 480
 ggctaacctt ctccaacaac gaattaatgg aaanttctga c 521

<210> 24
 <211> 172
 <212> PRT
 <213> Oryza sativa

<400> 24
 Phe Arg His Gly His Ala Leu Ala Gln Pro Phe Pro Asp Gly Gln Phe
 1 5 10 15
 Asp Leu Val Trp Ser Met Glu Ser Asp Glu His Met Pro Asp Lys Arg
 20 25 30
 Gln Phe Val Ser Glu Leu Ala Arg Val Ala Ala Pro Gly Ala Arg Ile
 35 40 45
 Ile Ile Val Thr Trp Cys His Arg Asn Leu Glu Pro Ser Glu Glu Ser
 50 55 60
 Leu Lys Pro Asp Glu Leu Asn Leu Leu Lys Arg Ile Cys Asp Ala Tyr
 65 70 75 80
 Tyr Leu Pro Asp Trp Cys Ser Pro Ser Asp Tyr Val Lys Ile Ala Glu
 85 90 95
 Ser Leu Ser Leu Glu Asp Ile Arg Thr Ala Asp Trp Ser Glu Asn Val
 100 105 110
 Ala Pro Phe Trp Pro Ala Val Ile Lys Ser Ala Leu Thr Trp Lys Gly
 115 120 125

Leu Thr Ser Leu Leu Arg Ser Gly Trp Glu Thr Val Arg Gly Ala Met
 130 135 140

Val Met Pro Leu Val Ile Glu Gly Tyr Lys Lys Gly Leu Ile Lys Phe
 145 150 155 160

Pro Ile Ile Thr Cys Arg Lys Pro Glu Thr Thr Gln
 165 170

<210> 25
 <211> 464
 <212> DNA
 <213> Oryza sativa

<400> 25
 gcacgagtag agcccacggg cgcactggca ccgctgcata cactgctccg ctgcacgagc 60
 cgtcatctct gcgcctcggc ttcccctcgc gccggcctct gcctccacca ccaccgccgc 120
 cgccgccgca gcagccggag gacgaaactc gccgtgcgcg cgatggcacc gacgttgtcc 180
 tcgtcgtcga cggcgccggc agctcccccg gggctgaagg agggcatcgc ggggctctac 240
 gacgagtcgt ccggcgtgtg ggagagcatt tggggcgagc acatgcacca cggcttctac 300
 gacgccggcg aggcgcctc catgtccgac caccgccgcg cccagatccg catgatcgag 360
 gaatccctcg ccttcgccgc cgttccccga tgatgcgggt aacaaaccca aaagtgttat 420
 ttactgtttg gtgttgcaaa tgggggtacc tccaaaaaac ttg 464

<210> 26
 <211> 128
 <212> PRT
 <213> Oryza sativa

<400> 26
 Ala Arg Val Gln Pro Thr Gly Ala Leu Ala Pro Leu His Pro Leu Leu
 1 5 10 15

Arg Cys Thr Ser Arg His Leu Cys Ala Ser Ala Ser Pro Arg Ala Gly
 20 25 30

Leu Cys Leu His His His Arg Arg Arg Arg Arg Ser Ser Arg Arg Thr
 35 40 45

Lys Leu Ala Val Arg Ala Met Ala Pro Thr Leu Ser Ser Ser Thr
 50 55 60

Ala Ala Ala Ala Pro Pro Gly Leu Lys Glu Gly Ile Ala Gly Leu Tyr
 65 70 75 80

Asp Glu Ser Ser Gly Val Trp Glu Ser Ile Trp Gly Glu His Met His
 85 90 95

His Gly Phe Tyr Asp Ala Gly Glu Ala Ala Ser Met Ser Asp His Arg
 100 105 110

Arg Ala Gln Ile Arg Met Ile Glu Glu Ser Leu Ala Phe Ala Ala Val
 115 120 125

<210> 27
 <211> 1189
 <212> DNA
 <213> Glycine max

<400> 27

```

ggacatggcc accgtgggtga ggatcccaac aatctcatgc atccacatcc acacgttccg 60
ttcccaatcc cctgcgactt tgcgcagaat cggggtcgga cccagggtcg gggctcctat 120
tcgggcatcg gcagcgagct cggagagagg ggagatagta ttggagcaga agccgaagaa 180
ggatgacaag aagaagctgc agaagggaat cgcagagttt tacgacgagt cgtctggctt 240
atgggagaac atttggggcg accacatgca ccatggcttt tatgactcgg attccactgt 300
ttcgctttcg gatcatcggt ctgctcagat ccgaatgatc caagagtctc ttcgctttgc 360
ctctgtttct gaggagcgta gtaaatggcc caagagtata gttgatgttg ggtgtggcat 420
aggtggcagc tctagatacc tggccaagaa atttgagca accagtgtag gcatcactct 480
gagtcctgtt caagctcaaa gagcaaatgc tcttgctgct gctcaaggat tggctgataa 540
ggtttccttt cagggttgctg acgctctaca gcaaccattc tctgacggcc agtttgatct 600
ggtgtgggtcc atggagagtg gagagcatat gcctgacaaa gctaagtttg ttggagagtt 660
agctcgggta gcagcaccag gtgccattat aataatagta acatgggtgcc acagggatct 720
tggccctgac gaacaatcct tacatccatg ggagcaagat ctcttaaaga agatttgcca 780
tgcataattac ctccctgcct ggtgctcaac ttctgattat gttaagttgc tccaatccct 840
gtcacttcag gacatcaagt cagaagattg gtctcgcttt gttgctccat tttggccagc 900
agtgatacgc tcagccttca catggaaggg tctatcttca ctcttgagca gtggacaaaa 960
aacgataaaa ggagcttttg ctatgccatt gatgatagag ggatacaaga aagatctaata 1020
taagtttgcc atcattacat gtcgaaaacc tgaataaatg gagaggcagg attactttta 1080
tagaatgaac caagttttcca acaggtcgtt tatttcgata gttgagaaac aagagaaaaa 1140
ataaatgaaa ggggttggtc gatttttaaaa aaaaaaaaaa aaaaaaaaaa 1189

```

<210> 28

<211> 350

<212> PRT

<213> Glycine max

<400> 28

```

Met Ala Thr Val Val Arg Ile Pro Thr Ile Ser Cys Ile His Ile His
  1             5             10             15

Thr Phe Arg Ser Gln Ser Pro Arg Thr Phe Ala Arg Ile Arg Val Gly
             20             25             30

Pro Arg Ser Trp Ala Pro Ile Arg Ala Ser Ala Ala Ser Ser Glu Arg
             35             40             45

Gly Glu Ile Val Leu Glu Gln Lys Pro Lys Lys Asp Asp Lys Lys Lys
  50             55             60

Leu Gln Lys Gly Ile Ala Glu Phe Tyr Asp Glu Ser Ser Gly Leu Trp
  65             70             75             80

Glu Asn Ile Trp Gly Asp His Met His His Gly Phe Tyr Asp Ser Asp
             85             90             95

Ser Thr Val Ser Leu Ser Asp His Arg Ala Ala Gln Ile Arg Met Ile
             100            105            110

Gln Glu Ser Leu Arg Phe Ala Ser Val Ser Glu Glu Arg Ser Lys Trp
             115            120            125

Pro Lys Ser Ile Val Asp Val Gly Cys Gly Ile Gly Gly Ser Ser Arg
             130            135            140

Tyr Leu Ala Lys Lys Phe Gly Ala Thr Ser Val Gly Ile Thr Leu Ser
  145            150            155            160

Pro Val Gln Ala Gln Arg Ala Asn Ala Leu Ala Ala Ala Gln Gly Leu
             165            170            175

Ala Asp Lys Val Ser Phe Gln Val Ala Asp Ala Leu Gln Gln Pro Phe

```


			180				185				190						
Ser	Asp	Gly	Gln	Phe	Asp	Leu	Val	Trp	Ser	Met	Glu	Ser	Gly	Glu	His		
		195					200					205					
Met	Pro	Asp	Lys	Ala	Lys	Phe	Val	Gly	Glu	Leu	Ala	Arg	Val	Ala	Ala		
	210					215					220						
Pro	Gly	Ala	Ile	Ile	Ile	Ile	Val	Thr	Trp	Cys	His	Arg	Asp	Leu	Gly		
225					230					235					240		
Pro	Asp	Glu	Gln	Ser	Leu	His	Pro	Trp	Glu	Gln	Asp	Leu	Leu	Lys	Lys		
				245					250					255			
Ile	Cys	Asp	Ala	Tyr	Tyr	Leu	Pro	Ala	Trp	Cys	Ser	Thr	Ser	Asp	Tyr		
			260					265					270				
Val	Lys	Leu	Leu	Gln	Ser	Leu	Ser	Leu	Gln	Asp	Ile	Lys	Ser	Glu	Asp		
		275					280					285					
Trp	Ser	Arg	Phe	Val	Ala	Pro	Phe	Trp	Pro	Ala	Val	Ile	Arg	Ser	Ala		
	290					295					300						
Phe	Thr	Trp	Lys	Gly	Leu	Ser	Ser	Leu	Leu	Ser	Ser	Gly	Gln	Lys	Thr		
305					310					315					320		
Ile	Lys	Gly	Ala	Leu	Ala	Met	Pro	Leu	Met	Ile	Glu	Gly	Tyr	Lys	Lys		
				325					330					335			
Asp	Leu	Ile	Lys	Phe	Ala	Ile	Ile	Thr	Cys	Arg	Lys	Pro	Glu				
			340					345					350				

```
<210> 29
<211> 1257
<212> DNA
<213> Triticum aestivum
```

```
<220>
<221> unsure
<222> (31)
<223> n = a, c, q, or t
```

```
<220>
<221> unsure
<222> (151)
<223> n = a, c, g, or t
```

<400> 29						
gaggctccaa	atacaaaatg	gcaaaactcgc	nccgccctgc	tccactcact	cctctccacc	60
gcctggacgc	cgcgcgcgcg	cctcgaccga	gcctcggcca	cgcggctcgc	cccgtccccc	120
ggcctgtcct	gccgctcctc	ccggccagac	ngctccgtgc	gcccgatggc	gtcgtcgcagc	180
accgcggccc	gggcgacgcg	gcgcgcgcgcg	ggctgaagga	gggcatcgcg	gggctctacg	240
acgagtcgtc	cggcctgtgg	gagagcatct	ggggcgagca	catgcaccac	ggcttctacg	300
actcgcgcga	ggcgcctcct	atgtccgacc	accgcgcgcg	ccagatccgc	atgatcgagg	360
aggccctcgc	cttcgcgcgc	gtccccgacg	atccgacaaa	caaacccaaa	acgattgttg	420
atgttg gatg	cggaatcggc	ggtagctcaa	gatacctggc	gaacaaatat	ggagcacaat	480
gctctgggat	cacattgagc	ccagtgcgaag	ctgagagagg	aaatgccctc	gcggcagcgc	540
aggggttgtc	ggacaaggct	tcttttccaag	ttgctgatgc	tctggagcaa	ccatttcctg	600
atgggcagtt	tgatcttgct	tggtctatgg	agagtggcga	gcacatgccg	aacaaacaga	660
agtttgtaag	cgagctggca	cgcgtcgcag	ctccaggagc	aactatcatc	atcgtgacct	720
ggtgccatag	gaacctcgcg	ccgtcggagg	actcactgaa	acctgacgag	ctggaatcttt	780

tgaaaaagat ttgtgatgca tattacctcc cggattggtg ctgcacctcg gattatgtca 840
agattgccga gtcattgtct cttgaggata tcaaacggc cgactggtca gaaaacgtgg 900
ccccgttctg gcctgctgtc atccaatcag cactgacatg gaaaggcctc acttctctac 960
taaggagtgg atggaagacg ataaaggagg cactggtgat gcctctcatg atccaaggct 1020
acaagaaagg cctcattaag ttcagcatca tcacctgccg caaaccccaa gcagccatag 1080
aaggagaacc tgaggccgca tcgccagtg tagaatagaa cccatgtgat tggaatagac 1140
tcggcttgct gtcgcctcgt agctgaataa